

Sharing the Wealth

The Danish case shows that a fruitful combination of rights and responsibility can incentivise fishers to strive for the best achievable result

Thorough analyses of fisheries policies have been carried out and numerous recommendations been made. Yet, most fish stocks are overfished, most fishing communities are economically underperforming, and most fisheries regulations have failed in one respect or the other.

The Danish approach to solve the management crisis has been to define a framework that incentivises fishermen to use their skills and ingenuity to the benefit of their own economy and the resource at the same time.

Denmark introduced individual transferable quotas (ITQs) in 2003 and 2007 as a means to adapt fleet capacity to fishing opportunities, to obtain a viable economy and to benefit the coastal fishery. This was a national option as Member States of the

Kingdom and Scotland in a joint statement agreed that a new fisheries policy must be developed, based on CQM where the fisher accounts for all the fish he removes from the sea and not just the fish he chooses to land.

On 1 January 2003, Denmark introduced ITQ management in the pelagic fishery and on 1 January 2007 in the more complex demersal fishery. The political agreement followed more than a decade of fruitless discussions and it was only supported by a narrow majority in parliament.

The objective of the ITQ management is to generate a high economic result and an effective use of the resources by giving the individual fisher a high degree of freedom to plan his fishery and his investments in the fishery. The political parties were aware that ITQ management is a powerful instrument for economic efficiency. The system was designed to support a competitive coastal fishery, improved entrance for young fishermen, and reduction of discards.

Only registered fishermen or fishing companies who have more than 60 per cent of their earnings from the fishery can participate in the ITQ fishery, and the vessels have to be owned by fishermen. This to ensure that the benefits from the fishery stay in the fishing communities.

Special considerations

The initial allocation of the right was given as a certain share for the individual fish stocks, based on the fishers' and the vessel's actual fishery in three preceding years. Special considerations were taken in relation to vessels with a non-typical fishery

European Union (EU) are responsible for allocating the national quotas derived from the EU resource policy.

With regard to the EU resource policy and its pending revision, Denmark has proposed a shift in management from 'regulation and control' to 'incentives and documentation'—also termed as 'catch quota management' (CQM) in contrast to present management, which is a management of landing quotas.

On 8 October 2009, Ministers from Denmark, Germany, the United

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(wreckage, change in ownership, etc.). All vessels with a yearly revenue more than 30,000 Euros were included in the ITQ scheme. The residual—and insignificant—part of the fleet is still regulated by rations.

The fish is a public resource and the ITQ share is subject to withdrawal with eight years notice. By giving the fishermen a share that reflected their actual fishery, the management accommodated the fishermen who were opposed to ITQs. The argument was that these fishermen would not seriously be affected by the system as they were not forced to buy or sell rights but could continue their normal fishery with the allocated ITQ shares reflecting their historic performance—a situation that would not be possible if the rights had been distributed through, for example, an auction.

A flexible use of the quotas was given high priority. The ITQ model allows for both structural adaptation through permanent selling of the shares and for day-to-day flexibility by allowing leasing of quotas and co-operation in fish pools. Also, the pool system was aimed at supporting co-operation in the individual harbours on the best use of the available fish and on the use and development of the harbour infrastructure and facilities.

Thus, the main criteria for an effective ITQ management—ownership and transferability—are met to a very high degree. The 'fish pool' has shown to be a very popular and efficient instrument. While buying and selling of rights on a permanent basis must be registered with the Directorate of Fisheries, leasing and swapping within the quota-year can be done in a flexible way in the fish pool without notifying the directorate. Fish pools are established on a private basis, are managed by a pool master, and must be approved by the Directorate of Fisheries. The pool must ensure that the total yearly quota allocation for its pool members is respected. Seven pools are in operation, and most of the catches of demersal species are taken by vessels in the pool system. All pools operate on a common website (www.puljefiskeri.dk), where the fisher may do his swapping or leasing online.

Leasing and swapping of quotas make it possible for the individual fisher to fine-tune the allocation to his day-to-day activity. He may even catch fish outside his quota in a mixed fishery, and remedy the situation by leasing the necessary amount after having landed the fish, a possibility that gives the fisher better economy and reduces discard of non-quota species.

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The pools have introduced a rule, that no fish must be discarded as long as one fisher in the pool has a quota. While this is not a 100 per cent guarantee against upgrading, it has increased awareness about good practices, and reduced discards.

Any registered fisher may enter a pool. The advantage of being in the pool is that leasing and swapping of quotas are made very flexible. The fisher enters the pool with the fish allocated to his vessel. Most pools merely operate as a facility for the individual fisher to swap and lease fish for his vessel. In this situation, the fisher has full control of his individual rights. One pool in Thorupstrand is based on a share system or co-operative. Here the

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A modern, demersal trawler at the large harbour of Hanstholm, on the west coast of Denmark

individual shares are treated like one, and managed by all the members jointly. The basic principle in this co-operative is that a fisher can become a member by paying a fixed, low entrance fee. Thereby younger fishers without quotas have an opportunity to enter the community quotas on the same conditions as the founding members. This prohibits extraction of the surplus from the co-operative. To

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the extent that the pools respect the fundamental requirement of precise and reliable catch registration, they have a large margin for developing their mode of operation.

Also, socio-political considerations are given high priority in the management. In order to support the coastal fishery, shares of the most important stocks have been set aside as a premium for vessels below 17 m. Participation in the coastal segment is voluntary. Once the vessels enter the segment, they have to stay there for three years to receive the premium. In this period, they cannot sell fish out of the segment, they cannot increase the size of the vessel and they have to conduct a coastal fishery. In a situation with many coastal vessels, the individual premium is relatively small, and should the interest and thus the number of vessels diminish, the individual premium will consequently increase. To illustrate with a few figures: the coastal fleet fishes in the order of 30-40 per cent of the important stocks of plaice, sole and cod.

A small share of fish is set aside in the Fishfund. The size of the share is fixed on an annual basis. This instrument can be used to allocate fish to fishermen or vessels to support, for example, collection of data, innovation, and so on. For the time being, fish from the Fishfund is allocated to young fishermen who invest in a vessel for

the first time. With the establishment of the Fishfund, it was not considered necessary to introduce a formal resource tax in connection with the introduction of ITQs.

Other elements in the ITQ model are rules for concentration of ownership of rights, and the stipulation that one must be active in the fishery to uphold the ITQ.

The results of Danish ITQ management are very positive. In 2007-08, the fleet was reduced by about 25 per cent, and it is now in balance. At the same time, profitability increased from 9 per cent to 20 per cent, and the investment rate more than doubled, as old vessels were replaced by new, and investments in value-added equipment rose as fishermen started focusing on value rather than quantity.

The coastal fishery became competitive under the new regime. The segment has actually increased its share of the most important demersal stocks. Today most fishermen fail to understand why it took so long to introduce ITQs.

The timetable for the implementation of the system shows a rapid process once the political decision was made. The policy was decided in November 2005. The legal framework was in place in December 2005. The big task of calculating, allocating and deciding on appeals regarding the initial allocation was finished in November 2006. The management was fully functioning by 1 January 2007 and the structural adaptation of the fleet was in place in mid-2008.

ITQ management has strong economic and distributional effects. In that context, it was important to ensure a clear connection between the Danish policy objectives and the concrete regulation. In the process of establishing the system as well as managing it, some lessons were learned.

Fishers' perception

The initial allocation of rights must be fair and broadly accepted. It is a financial active that is distributed, and fairness is very sensitive in relation to the individual fisher's perception

of the system. A significant number of discontented fishermen will be poisonous to the political acceptance and development of the system.

How will the market for ITQs develop? In Denmark, we were concerned about striking the right balance in the new market created for fishing rights. Would fishermen buying ITQs to stay in the fishery pay too much for the right, leaving only little money for investment in the industry? This showed not to be the case, and even if the present crisis has reduced profitability and the value of the fishing rights considerably, fishermen and the financial institutions do not consider the situation critical.

ITQs and transferability are often considered as the path to concentration, capitalistic exploitation and closure of coastal societies. The Danish experience here in the fourth year of ITQ management is that ITQs can be of net benefit to the coastal fishery and it can serve other political and societal priorities. It is important to make a distinction, however, between structure and overcapacity. While it is perfectly possible to ensure a structure benefitting small-scale fisheries, it is not within the logic of ITQs to allow overcapacity to persist. Thus, introducing ITQs in a situation with overcapacity will result in fewer vessels and empty spaces in some harbours. In the Danish case, the most industrious harbours thrived. It was interesting to see that Esbjerg, one of the biggest harbours, is now more or less closed as a fishing harbour, while some small harbours and 'fishing beaches' are doing well.

The Fishfund constitutes an instrument capable of supporting the development of the fishery and its needs to make adjustments in the allocation. This, however, was not necessary in the Danish case, and adjustments of allocations should, in any circumstance, be handled with care.

The results of the Danish ITQ model were expected, and there were no surprises. But the speed at which the fishermen adapted to the new situation by structural adaptation and building the fish pool as a new institution took everybody by surprise. This prompt



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and very constructive change in the fishermen's way of conducting their business led to the belief that they might also successfully assume the main responsibility for the management of the resource.

ITQ models give the opportunity, but not the guarantee, for a sustainable fishery. Discards of less valuable fish (upgrading) and illegal fishery do not disappear with ITQs.

In September 2008 Denmark presented a proposal for a new fisheries policy in the EU based on CQM. The feature of CQM is that fishermen are accountable for all their

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catches, whether they are landed or discarded at sea. The proposal entailed that fishermen, on a voluntary basis, could participate in the scheme. As they would count all catches, they would be given increased quotas for their vessel.

Fundamental change

This was a fundamental change from the present management based on landing quotas combined with numerous rules and controls to manage the fishers' behaviour at sea—

all with the aim of reducing discards and illegal fishery.

By choosing the CQM scheme and staying within it, fishermen would have to accept the burden of proof. They would have to establish reliable documentation of their total catches. Denmark suggested that such documentation would have to carry a very high credibility in the form of a closed-circuit television (CCTV) and sensor documentation system on each vessel in the scheme.

With the introduction of a CQM instead of landing quotas, the fisher would be responsible for his total take of the stock, and his incentive to optimize the value of the landed fish by discarding would be exchanged with his incentive to optimize the value of the total catch by fishing more selectively.

Denmark backed the proposal with a comprehensive pilot project to demonstrate the potential of a CQM based on the true figures of the take of fish stocks. In September 2009, Denmark ended a 12-month pilot

project with six vessels equipped with cameras and sensors. The project produced convincing results in relation to obtaining full accountability of all catches, reducing discards and changing fishermen's behaviour. The participating fishermen supported the idea and the practical implementation of the project. The results of the project can be seen at www.fvm.dk/yieldoffish

On the basis of the joint statement of 8 October 2009, the EU decided to introduce a CQM element as a trial on a limited scale in 2010. Denmark, England, Germany, Scotland and Sweden are now preparing a CQM management for around 80 vessels in European waters in 2010.

The continuation and development of the CQM in 2010 will show whether the introduction of an alternative management track can provide the benefits of correct registration of catches, precise data for biological advice, simplified regulations, better stock utilization pattern and abandonment of discards. In relation

Extract from the Danish, German and UK joint statement

We believe there are strong arguments for making fishermen more accountable for their total catches. It would improve information and management of removal levels of fish stocks and incentivise the development of selective fishing methods, gear and technology that can optimize the value of catches while significantly reducing the wasteful practice of discarding. We therefore wish to explore the scope for testing voluntary and incentive-driven management mechanisms based on catch rather than landing quotas. We would wish that fishermen choosing such an option carry the responsibility of documenting their total catches, and that the requirements for such documentation must ensure unequivocal reliability.

Our work to date on camera documentation and non-discard projects shows us that full documentation can be a feasible solution. However, we also recognize that further work needs to be done more generally to provide the necessary evidence and confidence to support this possible change in approach. We are therefore keen to work with the Commission and the Council - and with fishermen themselves - to refine our ideas and explore the potential to apply them during 2010 and for them to be a valuable reference point in the development of a new and more effective CFP.

Signed in Aalborg, 8 October 2009, by

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ITQ and CQM Management

	Baseline	ITQ	ITQ and CQM
Landings (tonnes)	100.000	100.000	100.000
Profit (million €)	9	46	39
Profit (million €), discard included	-16	21	39

Note: Model calculations by the Institute of Food and Resource Economics, University of Copenhagen; (www.foi.life.ku.dk), for calculation, contact Hans Frost, associate professor or see background paper at www.fvm.dk/yield_of_fish.

Baseline: Landings of 100.000 tonnes demersal fish. An overcapacity of 38 per cent and a discard of 20 per cent is assumed.

ITQ show the improvement in profit with an ITQ system with full market effect (discard 20 per cent). This can generate a catch surplus of 34,200 tonnes that can be distributed for sociopolitical purposes.

ITQ and **CQM** show the profit following introduction of an ITQ and CQM management.

to the huge public costs of managing and controlling fisheries, it will provide important information about the cost efficiency of this alternative method.

The fishery should generate wealth to fishing communities and to society in general. Today this is seldom the case. The Danish case shows that an ITQ management can be designed to accommodate both political priorities and economic efficiency. Thus the capital invested in the fleets can be minimized, and overcapacity removed. Similarly, the output value of the resource can be maximized if the individual fisher is incentivised in relation to his total catch and not just to the fish he chooses to land.

Management by transferable rights gives the maximum incentive to optimize capital input. This is the key to balancing fleet capacity, catching opportunities and regaining a sound economy. CQM ensures the maximum incentive to fish selectively and to bring all fish to the market. This is the key to optimal exploitation of fish stocks.

On the basis of the ITQ experience and the CQM trial with six vessels, the Danish Institute of Food and Resource Economics made a very crude calculation of the benefits of such management. The calculation cannot be seen as representative for the fisheries of the world. Nevertheless, the result suggests that ITQ and CQM management might be worth considering for most world fisheries (see box above).

It can be seen that ITQ management alone will result in an efficient use of the fleet in the fishery. At the same time, a considerable loss can be expected on the basis of strong empirical data regarding upgrading and other discards. The profit to the fishery is 46, while society enjoys a profit of only 21. If both ITQ and CQM are introduced, the profit for the fisher and for society are equal as the fisher cannot improve his earnings by overtaxing the resource.

Thus, the Danish conception of the wealth that should be derived from fisheries is:

- when the capital used to catch fish does not exceed what is necessary; and
- when the value of the resource is obtained on the basis of its full productive capacity for society, and not just on the highest valued fraction for the fisher.

The concept of CQM should enjoy a more widespread consideration as a tool to improve the global use of marine resources.

For more

www.fvm.dk/Default.aspx?ID=24957

**Denmark Ministry of Food,
Agriculture and Fisheries**

www.fvm.dk/Admin/Public/DWSDownload.aspx?File=%2FFiles%2FFiler%2FEnglish%2FFisheries%2FJoint_statement_okt2009.pdf

**Joint Statement of Danish, German,
UK and Spanish Ministers**

www.puljefiskeri.dk/
FishPool